

# Sheridan College

Centre for Manufacturing  
and Design Technologies  
Brampton, Ontario, Canada



*The Centre for Manufacturing and Design Technologies at Sheridan College's William G. Davis campus in Brampton, Ontario, opened on time earlier this fall. The Centre houses teaching and lab rooms and a fully equipped advanced manufacturing lab that will use simulators and full-size robots to train students in the use of computerized manufacturing for careers in the auto industry and industrial design.*

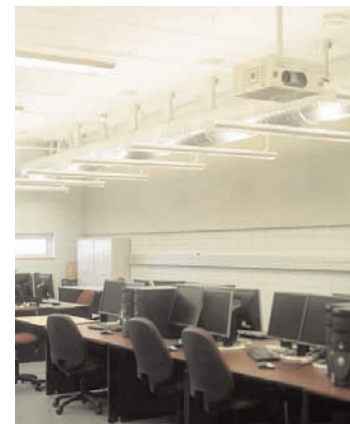


The approximately \$8.5 million project includes both new construction and the renovation of an existing building. This included both the construction of a gymnasium and the renovation of the building housing the manufacturing lab plus a two storey 20,000 square-foot teaching and laboratory building (using the Termodeck system) - that has been designed to accommodate an eventual third floor.

"We did all this on an incredibly modest budget and a tight schedule," says Michael Leckman, principal, Diamond & Schmitt Architects Incorporated. The project marked the return to the Brampton campus for the Toronto-based firm. Approximately five years ago Diamond & Schmitt created the campus master plan. Some elements of the design were a canopied main entrance, large corridors, expanded

lobby spaces and strategic views from many of the class- rooms and labs.

Michael Leckman described a key objective of the project; "to introduce technology that reflects the need to conserve energy, not just for current fuel costs, but those in 15 and 20 years. To meet those energy objectives, the design team adopted new uses for standard building technologies, as opposed to some expensive high technology." The primary method of

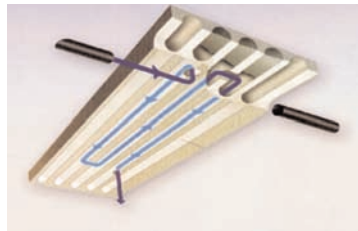




meeting both energy-efficiency and construction cost requirements was realized by providing heating and cooling using the thermal mass of the concrete floor slabs in the building.

The particular thermal- mass system used in the facility is called Termodeck ([www.termodeck.ca](http://www.termodeck.ca)), developed in Scandinavia in the 1970s. The circular voids in precast concrete hollow core flooring slabs are connected to air-handling ducts, that constantly pump

clean fresh air into the building, expelling the old air, and radiating warm air in the winter and cool air in the summer, significantly reducing



energy consumption, says Tim Jantzi of MCW Consultants Ltd., the Toronto-based mechanical/electrical consultants.

“The precast concrete floor and roof slabs efficiently absorb heat generated from lighting, machinery and re-radiated solar gains and distribute this heat to the space in locations and times that heating is required. In summer, air supply fans bring cool outside air into the cores of the concrete floor slabs during the evening and cool the slabs for distribution of this cooling to the space at the time and location required during occupied periods,” says Jantzi. “This is the first time for

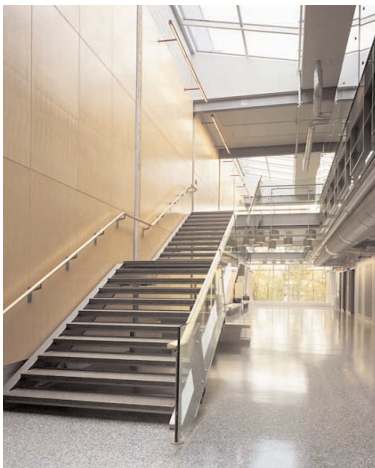


this system in Canada, although it’s been in use in Europe for about 10 years. We [Diamond & Schmitt] intend to use it in all our buildings,” says Leckman.

You can open the windows on a nice summer day!

**Charles-Bernard Gagnon, senior project architect at Diamond & Schmitt Architects, designed and coordinated the implementation of the Termodeck system on the project; “We realized in Brampton, the first building in Canada that fully integrates this technology. It was a real challenge and we are very proud of our accomplishment. As you must be aware now, Termodeck offers great possibilities in energy-saving and user comfort utilizing the thermal**

mass stored into hollow core precast concrete slabs, well established structural compartments for an economical and fast construction process. But we did not simply integrate Termodeck, the hollow core slabs are part of the architectural language we developed. The building is in a league of its own. It is a dynamic, sensitive piece of architecture and a contemporary showcase for good design.” Thermal Mass - From an operating energy perspective, the thermal inertia of heavy materials is well known, both in warm and cold climates.



**Thermal Mass** - From an operating energy perspective, the thermal inertia of heavy materials is well known, both in warm and cold climates.

**CREDITS:**

**Owner/Developer:** Sheridan College

**Architect:** Diamond & Schmitt Architects Incorporated

**General Contractor:** Bondfield Company Limited

**Structural Consultant:** Read Jones Christofferson Ltd.

**Landscape Architect:** Du Toit Allsop and Hillier

**Precast Concrete Hollow Core:** Stubbe's Precast Inc.

**Mechanical/Electrical Consultant:** MCW Consultants Ltd.

**Total Area:** 45,000 sq ft of new and renovated space

**Total Project Cost:** \$8.5 million